UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,082	03/31/2004	Edward K. Y. Jung	SE1-0012-US	9452

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EXAMINER
HUYNH, NAM TRUNG

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 March 2009*.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-26* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
        1.☐ Certified copies of the priority documents have been received.
        2.☐ Certified copies of the priority documents have been received in Application No. _____.
        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *6/17/09*.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

This office action is in response to amendment filed on 3/18/09. Of the

previously presented claims 1, 2, 4, 12, 13, 15, 23, and 24 were amended.

Information Disclosure Statement

1.   The information disclosure statement (IDS) submitted on 6/17/09 have been

considered by the examiner.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

4.   Claims 1-4, 9, 12-15, 20 and 23-26 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Mulgund et al. (US 2002/0161751) (hereinafter Mulgund) in view of

Warneke et al. ("Ultra-Low Power Communication Logic Circuits for Distributed Sensor

Networks", UC Berkeley, 1998) (hereinafter Warneke).

Regarding claims 1 and 12, Mulgund teaches a method comprising: transmitting

at least a part of one or more sensor-addressed content indexes (Node Data Table)

(paragraph 42; The Node Data Table is transmitted because the database server can

interrogate the node to retrieve it which implies that the table is transmitted by the node

in response to the interrogation. The Node Data Table is "sensor-addressed" because

an identifier of the node is included (i.e. Node A, B, or C). The Node Data Table is also

a "content index" because it contains "contents" such as the type of sensor data known

to originate from the node and is in the form of a table which is equivalent to an "index".)

the one or more sensor-addressed content indexes including one of a sensor-

addressed sensing index (paragraph 42, The contents of the Node Data Table is

considered a "sensing index" because it contains information pertaining to the type of

sensor data or "sensing" information in the form of a table or "index".) Additionally

Mulgund teaches that the sensing nodes comprise computational devices possibly

ranging in complexity from small embedded platforms to fully-fledged PCs (paragraph

26), but does not explicitly teach that the addressed content indexes are transmitted by

motes. Warneke teaches millimeter scale sensing and communication platforms which

compose a distributed sensor network called dust motes (page 1, lines 1-8). Therefore

it would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the invention of Mulgund to allow the motes taught by Warneke to be used in the sensing network in order to utilize sensors that provide low cost, low power consumption, and small size.

Regarding claims 2 and 13, Mulgund teaches transmitting at least a part of one or more sensor-addressed content indexes (Node Data Table) further comprises:

transmitting at least a part of at least one of a sensor-addressed sensing index (Node Data Table), the at least one of the sensor-addressed sensing index including at least one of a sensing information (type of sensor data known to originate from the node) (paragraph 42). The implementation of a mote for a sensor is taught by Warneke.

Regarding claims 3 and 14, Mulgund teaches transmitting at least a part of one or more sensor-addressed content indexes further comprises: transmitting at least a part of a sensor-addressed routing/spatial index (Data Table List) (paragraph 42; the Data Table List provides a mapping between individual nodes). The implementation of a mote for a sensor is taught by Warneke.

Regarding claims 4 and 15, Mulgund teaches transmitting at least a part of one or more sensor-addressed content indexes (Node Data Table) further comprises:

transmitting at least a part of at least one of a sensor-addressed sensing index (Node Data Table), the at least one of the sensor-addressed sensing index including at least one of a sensing information (type of sensor data known to originate from the node) (paragraph 42), and including at least one of a control function (software application programming interface (API) associated with one or more devices

(hardware) contained within the sensor (paragraph 26; The API is considered a control function because it is the software that "controls" the hardware. The hardware of the sensor comprises physical components which renders a "device" within the sensor.). The implementation of a mote for a sensor is taught by Warneke.

Regarding claims 9 and 20, Mulgund teaches transmitting at least a part of one or more sensor-addressed content indexes further comprises: effecting the transmitting in response to a query (interrogation) (paragraph 42). The implementation of a mote for a sensor is taught by Warneke.

Regarding claim 23, the limitations are rejected as applied to claim 1. Furthermore, Warneke teaches that each mote consists of a communication transceiver (transmitting means) and because the transceiver is within the mote, it is considered to be "proximate" (page 1, lines 6-9).

Regarding claim 24, the limitations are rejected as applied to claims 1-4.

Regarding claim 25, Mulgund teaches at least one reporting entity resident on the sensor further comprises: a processor configured to transmit at least a part of said at least one sensor-addressed content index (paragraph 26). The implementation of a mote for a sensor is taught by Warneke.

Regarding claim 26, Warneke teaches the mote comprises: at least one of a processor, a memory, or a communications device formed from a substrate (page 1, lines 6-8).

5.   Claims 5-8 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Mulgund et al. (US 2002/0161751) (hereinafter Mulgund) in view of Warneke et al.

("Ultra-Low Power Communication Logic Circuits for Distributed Sensor Networks", UC

Berkeley, 1998) (hereinafter Waraneke) as applied to claims 1 and 12, and further in

view of Chin et al. (US 2004/0090326) (hereinafter Chin).

Regarding claims 5 and 16, the combination of Mulgund and Warneke teaches

the limitations set forth in claims 1 and 12, but does not explicitly teach that the

transmission of the mote-addressed content indexes are effected in response to a

schedule. Chin discloses a wireless sensor network wherein the sensors communicate

with one another pursuant to a pre-arranged or self-organized communication protocol

and schedule (paragraph 4). Therefore it would have been obvious to one of ordinary

skill in the art at the time the invention was made to modify the invention of Mulgund

and Warneke to allow the motes to distribute information in response to a schedule, as

taught by Chin, in order for the motes to assume a so-called sleep mode during

intervening periods and conserve power.

Regarding claims 6 and 17, Chin teaches transmitting in response to a schedule

further comprises: means for receiving the schedule (paragraph 16).

Regarding claims 7 and 18, Chin teaches transmitting in response to a schedule

further comprises: means for deriving the schedule (paragraph 16).

Regarding claims 8 and 19, Chin teaches the effecting the transmitting in

response to a schedule further comprises: deriving the schedule at least in part from at

least one of an optimized query or a stored query (paragraph 25).

6.   Claims 10, 11, 21, and 21 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Mulgund et al. (US 2002/0161751) (hereinafter Mulgund) in view of

Warneke et al. ("Ultra-Low Power Communication Logic Circuits for Distributed Sensor

Networks", UC Berkeley, 1998) (hereinafter Warneke) as applied to claims 1 and 12,

and further in view of Eschenauer (US 2005/0140964).

The combination of Mulgund and Warneke teaches the limitations set forth in

claims 1 and 12, but does not explicitly teach that the mote-addressed content indexes

are transmitted utilizing at least one of a private or public key. Eschenauer disclsoes a

method and apparatus for key management in distributed sensor networks (title).

Eschenauer teaches that a distributed sensor network including sensors such as Smart

Dust sensors (motes), are distributed cryptographic (encryption) keys (paragraphs 3, 9,

44-46). Therefore it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify the combination of Mulgund and Warneke to

allow the motes to utilize distributed keys, as taught by Eschenauer, in order to provide

security to the sensor network to prevent unauthorized intrusion.

Response to Arguments

7.   Applicant's arguments with respect to claims 1-26 have been considered but are

moot in view of the new ground(s) of rejection.

Conclusion

8.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NAM HUYNH whose telephone number is (571)272-5970. The examiner can normally be reached on 8 a.m.-5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Eng/   /Nam Huynh/
Supervisory Patent Examiner, Art Unit 2617   Examiner, Art Unit 2617